

IN THE CLAIMS

Please amend the claims as follows:

Claim 1 (Canceled)

Claim 2 (Currently Amended): The etching method of claim [[1]]21, wherein the plasma etching process is performed while maintaining [[a]]the surface temperature of the object under a temperature condition of about 0°C or less.

Claim 3 (Currently Amended): The etching method of claim [[1]]21, wherein the etching target film is a low-k insulating film containing silicon (Si), oxygen (O) and carbon (C) atoms.

Claim 4 (Canceled)

Claim 5 (Currently Amended): The etching method of claim [[4]]21, wherein the heat dissipation mechanism further includes a cooling unit for cooling the object ~~to be processed~~ by a coolant, and the surface temperature of the object ~~to be processed~~ is controlled at about 20°C or less by lowering a temperature of the coolant.

Claims 6 - 9 (Canceled)

Claim 10 (Currently Amended) The etching method of claim [[9]]21, wherein lowering the surface temperature of the object is carried out by further employing a heat sink mechanism, lowering the surface temperature lowering of the object by the heat sink mechanism [[is]]being carried out by controlling a high frequency power applied to an

electrode disposed in the processing chamber to generate a plasma and a pressure of a backgas supplied to a backside of the object.

Claims 11 – 20 (Canceled)

Claim 21 (New): An etching method comprising the steps of:
depositing an etching target film on an object to be processed;
forming a resist containing an alicyclic acrylate resin, an alicyclic methacrylate resin, or a combination thereof;
introducing a processing gas into an airtight processing chamber to generate a plasma of the processing gas; and
performing a plasma etching process on the etching target film by using the resist as a mask, wherein the plasma etching process is performed while a surface temperature of the object is lowered by employing a heat dissipation mechanism and is maintained under a temperature condition of about 20°C or less,
wherein the heat dissipation mechanism includes an adsorptive holding member for adsorptively holding the object, and the surface temperature of the object is lowered by enhancing an adsorptive power of the adsorptive holding member by way of adopting a material of the adsorptive holding member to allow an amount of leakage current flowing therethrough to be controlled under the temperature condition, the material of the adsorptive holding member having a resistivity smaller than about $1 \times 10^{12} \Omega \cdot \text{cm}$.

Claim 22 (New): The etching method of claim 21, wherein the adsorptive holding member is a dielectric film layer formed on a backside of the object.

Claim 23 (New): An etching method comprising the steps of:

depositing an etching target film on an object to be processed;

forming a resist containing an alicyclic acrylate resin, an alicyclic methacrylate resin, or a combination thereof;

introducing a processing gas into an airtight processing chamber to generate a plasma of the processing gas; and

performing a plasma etching process on the etching target film by using the resist as a mask, wherein the plasma etching process is performed while a surface temperature of the object is lowered by employing a heat dissipation mechanism and is maintained under a temperature condition of about 20°C or less,

wherein the heat dissipation mechanism includes an adsorptive holding member for adsorptively holding the object, and the surface temperature of the object is lowered by enhancing an adsorptive power of the adsorptive holding member by finishing a surface of the object to be of a mirror surface, the surface being in contact with the adsorptive holding member.

Claim 24 (New): The etching method of claim 23, wherein the plasma etching process is performed while maintaining the surface temperature of the object under a temperature condition of about 0°C or less.

Claim 25 (New): The etching method of claim 23, wherein the etching target film is a low-k insulating film containing silicon (Si), oxygen (O) and carbon (C) atoms.

Claim 26 (New): The etching method of claim 23, wherein the heat dissipation mechanism further includes a cooling unit for cooling the object by a coolant, and the surface

temperature of the object is controlled at about 20°C or less by lowering a temperature of the coolant.

Claim 27 (New): The etching method of claim 23, wherein lowering the surface temperature of the object is carried out by further employing a heat sink mechanism, lowering the surface temperature by the heat sink mechanism being carried out by controlling a high frequency power applied to an electrode disposed in the processing chamber to generate a plasma and a pressure of a backgas supplied to a backside of the object.

Claim 28 (New): An etching method comprising the steps of:
depositing an etching target film on an object to be processed;
forming a resist containing an alicyclic acrylate resin, an alicyclic methacrylate resin, or a combination thereof;
introducing a processing gas into an airtight processing chamber to generate a plasma of the processing gas; and
performing a plasma etching process on the etching target film by using the resist as a mask, wherein the plasma etching process is performed while a surface temperature of the object is lowered by employing a heat dissipation mechanism and is maintained under a temperature condition of about 20°C or less,
wherein the heat dissipation mechanism includes an adsorptive holding member for adsorptively holding the object, and the surface temperature of the object is lowered by enhancing an adsorptive power of the adsorptive holding member by forming in advance a SiN film on a backside of the object.

Claim 29 (New): The etching method of claim 28, wherein the plasma etching process is performed while maintaining the surface temperature of the object under a temperature condition of about 0°C or less.

Claim 30 (New): The etching method of claim 28, wherein the etching target film is a low-k insulating film containing silicon (Si), oxygen (O) and carbon (C) atoms.

Claim 31 (New): The etching method of claim 28, wherein the heat dissipation mechanism further includes a cooling unit for cooling the object by a coolant, and the surface temperature of the object is controlled at about 20°C or less by lowering a temperature of the coolant.

Claim 32 (New): The etching method of claim 28, wherein lowering the surface temperature of the object is carried out by further employing a heat sink mechanism, lowering the surface temperature by the heat sink mechanism being carried out by controlling a high frequency power applied to an electrode disposed in the processing chamber to generate a plasma and a pressure of a backgas supplied to a backside of the object.